

Amendments to the Claims

This listing of claims will replace all prior versions and listings of claims in the application.

Listing of Claims

1. (Currently Amended) A paint comprising an enzymatically active esterase classified in an enzyme subclass designated by Enzyme Commission number EC 3.1.8, wherein the paint comprises an architectural paint, an automotive paint, a can paint, a sealant paint, a chemical agent resistant paint, a camouflage paint, a traffic marker paint, an aircraft paint, a nuclear power plant paint, or a combination thereof.

2. – 14. (Canceled)

15. (Previously Presented) The paint of claim 1, wherein the enzymatically active esterase comprises an aryldialkylphosphatase, a diisopropyl-fluorophosphatase, or a combination thereof.

16. (Previously Presented) The paint of claim 1, wherein the enzymatically active esterase comprises a combination of phosphoric triester hydrolases.

17. (Previously Presented) The paint of claim 1, wherein the enzymatically active esterase comprises an aryldialkylphosphatase.

18. (Previously Presented) The paint of claim 17, wherein the aryldialkylphosphatase comprises an organophosphorus hydrolase, a human paraoxonase, an animal carboxylase, or a functional equivalent thereof.

19. (Previously Presented) The paint of claim 17, wherein the aryldialkylphosphatase comprises an organophosphorus hydrolase or a functional equivalent thereof.

20. (Previously Presented) The paint of claim 19, wherein the organophosphorus hydrolase comprises an *Agrobacterium radiobacter* P230 organophosphate hydrolase, a *Flavobacterium balustinum* parathion hydrolase, a *Pseudomonas diminuta* phosphotriesterase, a *Flavobacterium sp opd* gene product, a *Flavobacterium sp.* parathion hydrolase *opd* gene product.

21. (Previously Presented) The paint of claim 19, wherein the organophosphorus hydrolase comprises a functional equivalent of: a *Agrobacterium radiobacter* P230 organophosphate hydrolase, a *Flavobacterium balustinum* parathion hydrolase, a *Pseudomonas diminuta* phosphotriesterase, a *Flavobacterium sp opd* gene product, or a *Flavobacterium sp.* parathion hydrolase *opd* gene product.

22. (Previously Presented) The paint of claim 21, wherein the functional equivalent is a structural analog.

23. (Previously Presented) The paint of claim 22, wherein the structural analog comprises a Co^{2+} , Fe^{2+} , Cu^{2+} , Mn^{2+} , Cd^{2+} , or Ni^{2+} at the enzyme active site.

24. (Previously Presented) The paint of claim 21, wherein the functional equivalent is a sequence analog.

25. (Previously Presented) The paint of claim 24, wherein the sequence analog is an alteration in sequence length.

26. (Previously Presented) The paint of claim 24, wherein the sequence analog lacks a leader peptide sequence.

27. (Previously Presented) The paint of claim 24, wherein the sequence analog is a fusion protein.

28. (Withdrawn) The paint of claim 19, wherein the organophosphorus hydrolase comprises a *Pseudomonas diminuta* phosphotriesterase or a functional equivalent thereof.

29. – 30. (Canceled)

31. (Withdrawn) The paint of claim 28, wherein the *Pseudomonas diminuta* phosphotriesterase functional equivalent comprises a sequence analog.

32. (Withdrawn) The paint of claim 31, wherein the sequence analog comprises an amino acid substitution.

33. (Withdrawn) The paint of claim 32, wherein the sequence analog is H55C, H57C, C59A, G60A, S61A, I106A, I106G, W131A, W131F, W131K, F132A, F132H, F132Y, L136Y, L140Y, H201C, H230C, H254A, H254R, H254S, H257A, H257L, H257Y, L271A, L271Y, L303A, F306A, F306E, F306H, F306K, F306Y, S308A, S308G, Y309A, M317A, M317H, M317K, M317R, H55C/H57C, H55C/H201C, H55C/H230C, H57C/H201C, H57C/H230C, A80V/S365P, I106A/F132A, I106A/S308A, I106G/F132G, I106G/S308G, F132Y/F306H, F132H/F306H, F132H/F306Y, F132Y/F306Y, F132A/S308A, F132G/S308G, L182S/V310A, H201C/H230C, H254R/H257L, H55C/H57C/H201C, H55C/H57C/H230C, H55C/H201C/H230C, I106A/F132A/H257Y, I106A/F132A/H257W, I106G/F132G/S308G, L130M/H257Y/I274N, H257Y/I274N/S365P, H55C/H57C/H201C/H230C, I106G/F132G/H257Y/S308G, or A14T/A80V/L185R/H257Y/I274N.

34. (Withdrawn) The paint of claim 17, wherein the aryldialkylphosphatase comprises a human paraoxonase or a functional equivalent thereof.

35. (Withdrawn) The paint of claim 34, wherein the human paraoxonase comprises an HPON1 gene product or a functional equivalent thereof.

36. (Canceled)

37. (Withdrawn) The paint of claim 35, wherein the HPON1 gene product functional equivalent comprises a sequence analog.

38. (Withdrawn) The paint of claim 37, wherein the sequence analog comprises an amino acid substitution.

39. (Withdrawn) The paint of claim 38, wherein the sequence analog is E32A, E48A, E52A, D53A, D88A, D107A, H114N, D121A, H133N, H154N, H160N, W193A, W193F, W201A, W201F, H242N, H245N, H250N, W253A, W253F, D273A, W280A, W280F, H284N, or H347N.

40. (Withdrawn) The paint of claim 17, wherein the aryldialkylphosphatase comprises an animal carboxylase.

41. (Withdrawn) The paint of claim 40, wherein the animal carboxylase comprises an insect carboxylase or a functional equivalent thereof.

42. (Withdrawn) The paint of claim 41, wherein the insect carboxylase comprises a *Plodia inrerpunctella* carboxylase, *Chrysomya putoria* carboxylase, *Lucilia cuprina* carboxylase, *Musca domestica* carboxylase, or a functional equivalent thereof.

43. (Withdrawn) The paint of claim 1, wherein the enzymatically active esterase comprises a diisopropyl-fluorophosphatase.

44. (Withdrawn) The paint of claim 43, wherein the diisopropyl-fluorophosphatase comprises an organophosphorus acid anhydrolase, a squid-type DFPase, a Mazur-type DFPase, or a functional equivalent thereof.

45. (Withdrawn) The paint of claim 43, wherein the diisopropyl-fluorophosphatase comprises an organophosphorus acid anhydrolase or a functional equivalent thereof.

46. (Withdrawn) The paint of claim 45, wherein the organophosphorus acid anhydrolase comprises an *Altermonas* organophosphorus acid anhydrolase, a prolidase, or a functional equivalent thereof.

47. (Withdrawn) The paint of claim 45, wherein the organophosphorus acid anhydrolase comprises an *Altermonas* organophosphorus acid anhydrolase or a functional equivalent thereof.

48. (Withdrawn) The paint of claim 47, wherein the *Altermonas* organophosphorus acid anhydrolase comprises an *Alteromonas* sp JD6.5 organophosphorus acid anhydrolase, an *Altermonas haloplanktis* organophosphorus acid anhydrolase, an *Altermonas undina* organophosphorus acid anhydrolase, or a functional equivalent thereof.

49. (Withdrawn) The paint of claim 45, wherein the organophosphorus acid anhydrolase comprises a prolidase or a functional equivalent thereof.

50. (Withdrawn) The paint of claim 49, wherein the prolidase comprises a human prolidase, a *Mus musculus* prolidase, a *Lactobacillus helveticus* prolidase, an *Escherichia coli* prolidase, an *Escherichia coli* aminopeptidase P, or a functional equivalent thereof.

51. (Withdrawn) The paint of claim 43, wherein the diisopropyl-fluorophosphatase comprises a squid-type DFPase or a functional equivalent thereof.

52. (Withdrawn) The paint of claim 51, wherein the squid-type DFPase comprises a *Loligo vulgaris* DFPase, a *Loligo pealei* DFPase, a *Loligo opalescens* DFPase, or a functional equivalent thereof.

53. – 54. (Canceled)

55. (Withdrawn) The paint of claim 51, wherein the squid-type DFPase comprises a *Loligo vulgaris* DFPase functional equivalent.

56. (Withdrawn) The paint of claim 55, wherein the *Loligo vulgaris* DFPase functional equivalent comprises a sequence analog.

57. (Withdrawn) The paint of claim 56, wherein the sequence analog comprises an amino acid substitution.

58. (Withdrawn) The paint of claim 57, wherein the sequence analog is H181N, H224N, H274N, H219N, H248N, or H287N.

59. (Withdrawn) The paint of claim 57, wherein the sequence analog is an alteration in sequence length.

60. (Withdrawn) The paint of claim 59, wherein the sequence analog is a fusion protein.

61. (Withdrawn) The paint of claim 43, wherein the diisopropyl-fluorophosphatase comprises a Mazur-type DFPase or a functional equivalent thereof.

62. (Withdrawn) The paint of claim 61, wherein the Mazur-type DFPase comprises a mouse liver DFPase, a hog kidney DFPase, a *Bacillus stearothermophilus* strain OT DFPase, an *Escherichia coli* DFPase, or a functional equivalent thereof.

63. (Withdrawn) The paint of claim 1, wherein the enzymatically active esterase comprises a *Plesiomonas* sp. strain M6 *nzpd* gene product, a *Xanthomonas* sp. phosphoric triester hydrolase, a *Tetrahymena* phosphoric triester hydrolase, or a functional equivalent thereof.

64 – 66. (Canceled)

67. (Previously Presented) The paint of claim 1, wherein the enzymatically active esterase comprises 0.001% to 40% of the paint composition by weight or volume.

68. (Canceled)

69. (Withdrawn) The paint of claim 1, wherein the enzymatically active esterase comprises a microorganism based particulate material.

70. (Withdrawn) The paint of claim 69, wherein the microorganism based particulate material is a whole cell material.

71. (Withdrawn) The paint of claim 69, wherein the microorganism based particulate material is a cell fragment microorganism based particulate material.

72. (Previously Presented) The paint of claim 1, wherein the paint comprises a buffer.

73. (Previously Presented) The paint of claim 72, wherein the buffer comprises a bicarbonate.

74. (Previously Presented) The paint of claim 1, wherein the paint is 5 μm to 1500 μm thick upon a surface in a state of matter selected from a group consisting of a liquid and a solid.

75. (Previously Presented) The paint of claim 1, wherein the paint is 15 μm to 500 μm thick upon a surface in a state of matter selected from a group consisting of a liquid and a solid.

76. – 78. (Canceled)

79. (Previously Presented) The paint of claim 1, wherein the paint comprises a multicoat system.

80. (Previously Presented) The paint of claim 79, wherein the multicoat system comprises 2 to 10 layers.

81. (Previously Presented) The paint of claim 80, wherein one layer of the multicoat system comprises the enzymatically active esterase.

82. (Previously Presented) The paint of claim 80, wherein a plurality of layers of the multicoat system comprise the enzymatically active esterase.

83. (Previously Presented) The paint of claim 80, wherein each layer of the multicoat system is 15 μm to 150 μm thick in a state of matter selected from a group consisting of a liquid and a solid.

84. (Previously Presented) The paint of claim 79, wherein the multicoat system comprises a sealer, a water repellent, a primer, an undercoat, or a topcoat.

85. (Previously Presented) The paint of claim 79, wherein the multicoat system comprises a topcoat.

86. (Previously Presented) The paint of claim 85, wherein the topcoat comprises the enzymatically active esterase.

87. (Previously Presented) The paint of claim 1, wherein the paint further comprises a binder, a liquid component, a colorant, an additive, or a combination thereof.

88. (Previously Presented) The paint of claim 1, wherein the paint undergoes film formation.

89. (Previously Presented) The paint of claim 88, wherein the film formation occurs at a temperature between -10°C and 40°C .

90. (Withdrawn) The paint of claim 88, wherein film formation occurs at baking conditions.

91. (Withdrawn) The paint of claim 90, wherein the baking conditions comprise a temperature between 40°C and 50°C .

92. (Withdrawn) The paint of claim 90, wherein the baking conditions comprise a temperature between 40°C and 65°C .

93. (Withdrawn) The paint of claim 90, wherein the baking conditions comprise a temperature between 40°C and 110°C .

94. (Previously Presented) The paint of claim 88, wherein the paint comprises a volatile component and a non-volatile component.
95. (Previously Presented) The paint of claim 94, wherein the paint undergoes film formation by loss of part of the volatile component.
96. (Previously Presented) The paint of claim 94, wherein the volatile component comprises a volatile liquid component.
97. (Previously Presented) The paint of claim 96, wherein the volatile liquid component comprises a solvent, a thinner, a diluent, or a combination thereof.
98. (Previously Presented) The paint of claim 94, wherein the non-volatile component comprises a binder, a colorant, a plasticizer, a coating additive, or a combination thereof.
99. (Previously Presented) The paint of claim 88, wherein film formation occurs by crosslinking of a binder.
100. (Previously Presented) The paint of claim 99, wherein film formation occurs by crosslinking of a plurality of binders.
101. (Withdrawn) The paint of claim 88, wherein film formation occurs by irradiating the paint.
102. (Previously Presented) The paint of claim 1, wherein the paint produces a self-cleaning film.
103. (Withdrawn) The paint of claim 1, wherein the paint is a non-film forming coating.
104. (Withdrawn) The paint of claim 103, wherein the non-film forming coating comprises a non-film formation binder.

105. (Withdrawn) The paint of claim 103, wherein the non-film forming coating comprises a coating component in a concentration that is insufficient to produce a solid film.

106. (Withdrawn) The paint of claim 105, wherein the coating component comprises a binder that contributes to thermoplastic film formation.

107. (Withdrawn) The paint of claim 105, wherein the coating component contributes to thermosetting film formation.

108. (Withdrawn) The paint of claim 107, wherein the coating component comprises a binder, catalyst, initiator, or combination thereof.

109. (Canceled)

110. (Previously Presented) The paint of claim 1, wherein the paint produces a temporary film on a surface for a time period between 1 second and 6 months.

111. (Previously Presented) The paint of claim 110, wherein the temporary film is susceptible to wear by exposure to water, exposure to weathering conditions, or a combination thereof.

112. (Previously Presented) The paint of claim 110, wherein the temporary film is susceptible to wear by a scrubbing action, exposure to a solvent, or a combination thereof.

113. (Previously Presented) The paint of claim 1, wherein the paint comprises an architectural coating, an industrial coating, a specification coating, or a combination thereof.

114. (Previously Presented) The paint of claim 1, wherein the paint comprises an architectural coating.

115. (Previously Presented) The paint of claim 114, wherein the architectural coating comprises a wood coating, a masonry coating, an artist's coating, or a combination thereof.

116. (Previously Presented) The paint of claim 114, wherein the architectural coating has a pot life of at least 12 months at temperatures between -10 °C and 40 °C.

117. (Previously Presented) The paint of claim 114, wherein the architectural paint undergoes film formation at temperatures between -10 °C and 40 °C.

118. (Previously Presented) The paint of claim 1, wherein the coating comprises an industrial coating.

119. (Currently Amended) The paint of claim 118, wherein the industrial paint comprises an automotive paint, a can paint, sealant paint, ~~a marine paint~~, or a combination thereof.

120. (Withdrawn) The paint of claim 119, wherein the industrial paint undergoes film formation at baking conditions.

121. (Previously Presented) The paint of claim 1, wherein the paint comprises a specification paint.

122. (Currently Amended) The paint of claim 121, wherein the specification coating comprises ~~a pipeline coating~~, traffic marker coating, aircraft coating, a nuclear power plant coating, or a combination thereof.

123. (Previously Presented) The paint of claim 1, wherein the paint comprises a water-borne paint.

124. (Previously Presented) The paint of claim 123, wherein the water-borne paint is a latex paint.

125. (Previously Presented) The paint of claim 123, wherein the water-borne paint has a density of 1.20 kg/L to 1.50 kg/L.

126. (Previously Presented) The paint of claim 1, wherein the paint comprises a solvent-borne paint.

127. (Previously Presented) The paint of claim 126, wherein the solvent-borne paint has a density of 0.90 kg/L to 1.2 kg/L.

128. (Previously Presented) The paint of claim 1, wherein the paint has a viscosity during application of 72 Ku to 95 Ku.

129. (Previously Presented) The paint of claim 1, wherein the paint has a viscosity prior to application of 100 P to 1000 P.

130. (Previously Presented) The paint of claim 1, wherein the paint has a viscosity during application of 0.5 P to 2.5 P.

131. (Previously Presented) The paint of claim 1, wherein the paint has a viscosity of 100 P to 1000 P upon a surface immediately after application.

132. (Previously Presented) The paint of claim 1, wherein the paint further comprises a binder.

133. (Previously Presented) The paint of claim 132, wherein the binder comprises a thermoplastic binder, a thermosetting binder, or a combination thereof.

134. (Previously Presented) The paint of claim 132, wherein the binder comprises a thermoplastic binder.

135. (Previously Presented) The paint of claim 134, wherein the paint produces a film by thermoplastic film formation.

136. (Withdrawn) The paint of claim 132, wherein the binder comprises a thermosetting binder.

137. (Withdrawn) The paint of claim 136, wherein the paint produces a film by thermosetting film formation.

138. (Withdrawn) The paint of claim 132, wherein the binder comprises an oil-based binder.

139. (Withdrawn) The paint of claim 138, wherein the oil-based binder comprises an oil, an alkyd, an oleoresinous binder, a fatty acid epoxide ester, or a combination thereof.

140. (Withdrawn) The paint of claim 139, wherein the paint produces a layer 15 μm to 25 μm thick upon a vertical surface or 15 μm to 40 μm thick upon a horizontal surface.

141. (Withdrawn) The paint of claim 132, wherein the binder comprises an oil.

142. (Withdrawn) The paint of claim 132, wherein the binder comprises an alkyd.

143. (Withdrawn) The paint of claim 132, wherein the binder comprises an oleoresinous binder.

144. (Withdrawn) The paint of claim 132, wherein the binder comprises a fatty acid epoxide ester.

145. (Withdrawn) The paint of claim 132, wherein the binder comprises a polyester resin.

146. (Withdrawn) The paint of claim 145, wherein the polyester resin comprises a hydroxy-terminated polyester.

147. (Withdrawn) The paint of claim 145, wherein the polyester resin comprises a carboxylic acid-terminated polyester.

148. (Withdrawn) The paint of claim 145, wherein the paint further comprises a urethane, an amino resin, or a combination thereof.

149. (Withdrawn) The paint of claim 132, wherein the binder comprises a modified cellulose.
150. (Withdrawn) The paint of claim 149, wherein the modified cellulose comprises a cellulose ester.
151. (Withdrawn) The paint of claim 149, wherein the modified cellulose comprises a nitrocellulose.
152. (Withdrawn) The paint of claim 149, wherein the paint further comprises an amino binder, an acrylic binder, urethane binder, or a combination thereof.
153. (Withdrawn) The paint of claim 132, wherein the binder comprises a polyamide.
154. (Withdrawn) The paint of claim 153, wherein the paint further comprises an epoxide.
155. (Withdrawn) The paint of claim 132, wherein the binder comprises an amino resin.
156. (Withdrawn) The paint of claim 155, wherein the paint further comprises an acrylic binder, an alkyd resin, a polyester binder, or a combination thereof.
157. (Withdrawn) The paint of claim 132, wherein the binder comprises an urethane binder.
158. (Withdrawn) The paint of claim 157, wherein the paint further comprises a polyol, an amine, an epoxide, a silicone, a vinyl, a phenolic, a triacrylate, or a combination thereof.
159. (Withdrawn) The paint of claim 132, wherein the binder comprises a phenolic resin.
160. (Withdrawn) The paint of claim 159, wherein the paint further comprises an alkyd resin, an amino resin, a blown oil, an epoxy resin, a polyamide, a polyvinyl resin, or a combination thereof.

161. (Withdrawn) The paint of claim 132, wherein the binder comprises an epoxy resin.
162. (Withdrawn) The paint of claim 161, wherein the paint further comprises an amino resin a phenolic resin, a polyamide, a ketimine, an aliphatic amine, or a combination thereof.
163. (Withdrawn) The paint of claim 161, wherein the epoxy resin comprises a cycloaliphatic epoxy binder.
164. (Withdrawn) The paint of claim 163, wherein the paint further comprises a polyol.
165. (Withdrawn) The paint of claim 132, wherein the binder comprises a polyhydroxyether binder.
166. (Withdrawn) The paint of claim 165, wherein the paint further comprises an epoxide, a polyurethane comprising an isocyanate moiety, an amino resin, or a combination thereof.
167. (Withdrawn) The paint of claim 132, wherein the binder comprises an acrylic resin.
168. (Withdrawn) The paint of claim 167, wherein the paint further comprises an epoxide, a polyurethane comprising an isocyanate moiety, an amino resin, or a combination thereof.
169. (Withdrawn) The paint of claim 132, wherein the binder comprises a polyvinyl binder.
170. (Withdrawn) The paint of claim 169, wherein the paint further comprises an alkyd, an urethane, an amino-resin, or a combination thereof.
171. (Withdrawn) The paint of claim 132, wherein the binder comprises a rubber resin.
172. (Withdrawn) The paint of claim 171, wherein the rubber resin comprises a chlorinated rubber resin, a synthetic rubber resin, or a combination thereof.

173. (Withdrawn) The paint of claim 171, wherein the paint further comprises an acrylic resin, an alkyd resin, a bituminous resin, or a combination thereof.
174. (Withdrawn) The paint of claim 132, wherein the binder comprises a bituminous binder.
175. (Withdrawn) The paint of claim 174, wherein the paint further comprises an epoxy resin.
176. (Withdrawn) The paint of claim 132, wherein the binder comprises a polysulfide binder.
177. (Withdrawn) The paint of claim 176, wherein the paint further comprises a peroxide, a binder comprising an isocyanate moiety, or a combination thereof.
178. (Withdrawn) The paint of claim 132, wherein the binder comprises a silicone binder.
179. (Withdrawn) The paint of claim 178, wherein the paint further comprises an organic binder.
180. (Previously Presented) The paint of claim 1, wherein the paint comprises a liquid component.
181. (Previously Presented) The paint of claim 180, wherein the liquid component comprises a solvent, a thinner, a diluent, a plasticizer, or a combination thereof.
182. (Previously Presented) The paint of claim 180, wherein the liquid component comprises a liquid organic compound, an inorganic compound, water, or a combination thereof.
183. (Withdrawn) The paint of claim 180, wherein the liquid component comprises a liquid organic compound.

184. (Withdrawn) The paint of claim 183, wherein the liquid organic compound comprises a hydrocarbon, an oxygenated compound, a chlorinated hydrocarbon, a nitrated hydrocarbon, a miscellaneous organic liquid component, a plasticizer, or a combination thereof.

185. (Withdrawn) The paint of claim 183, wherein the liquid organic compound comprises a hydrocarbon.

186. (Withdrawn) The paint of claim 185, wherein the hydrocarbon comprises an aliphatic hydrocarbon, a cycloaliphatic hydrocarbon, a terpene, an aromatic hydrocarbon, or a combination thereof.

187. (Withdrawn) The paint of claim 185, wherein the hydrocarbon comprises an aliphatic hydrocarbon.

188. (Withdrawn) The paint of claim 187, wherein the aliphatic hydrocarbon comprises a petroleum ether, pentane, hexane, heptane, isododecane, a kerosene, a mineral spirit, a VMP naphthas, or a combination thereof.

189. (Withdrawn) The paint of claim 185, wherein the hydrocarbon comprises a cycloaliphatic hydrocarbon.

190. (Withdrawn) The paint of claim 189, wherein the cycloaliphatic hydrocarbon comprises cyclohexane, methylcyclohexane, ethylcyclohexane, tetrahydronaphthalene, decahydronaphthalene, or a combination thereof.

191. (Withdrawn) The paint of claim 185, wherein the hydrocarbon comprises a terpene.

192. (Withdrawn) The paint of claim 191, wherein the terpene comprises wood terpentine oil, pine oil, α -pinene, β -pinene, dipentene, D-limonene, or a combination thereof.

193. (Withdrawn) The paint of claim 185, wherein the hydrocarbon comprises an aromatic hydrocarbon.

194. (Withdrawn) The paint of claim 193, wherein the aromatic hydrocarbon comprises benzene, toluene, ethylbenzene, xylene, cumene, a type I high flash aromatic naphthas, a type II high flash aromatic naphthas, mesitylene, pseudocumene, cymol, styrene, or a combination thereof.

195. (Withdrawn) The paint of claim 183, wherein the liquid organic compound comprises an oxygenated compound.

196. (Withdrawn) The paint of claim 195, wherein the oxygenated compound comprises an alcohol, an ester, a glycol ether, a ketone, an ether, or a combination thereof.

197. (Withdrawn) The paint of claim 195, wherein the oxygenated compound comprises an alcohol.

198. (Withdrawn) The paint of claim 197, wherein the alcohol comprises methanol, ethanol, propanol, isopropanol, 1-butanol, isobutanol, 2-butanol, tert-butanol, amyl alcohol, isoamyl alcohol, hexanol, methylisobutylcarbinol, 2-ethylbutanol, isooctyl alcohol, 2-ethylhexanol, isodecanol, cyclohexanol, methylcyclohexanol, trimethylcyclohexanol, benzyl alcohol, methylbenzyl alcohol, furfuryl alcohol, tetrahydrofurfuryl alcohol, diacetone alcohol, trimethylcyclohexanol, or a combination thereof.

199. (Withdrawn) The paint of claim 195, wherein the oxygenated compound comprises an ester.

200. (Withdrawn) The paint of claim 199, wherein the ester comprises methyl formate, ethyl formate, butyl formate, isobutyl formate, methyl acetate, ethyl acetate, propyl acetate, isopropyl acetate, butyl acetate, isobutyl acetate, *sec*-butyl acetate, amyl acetate, isoamyl acetate, hexyl acetate, cyclohexyl acetate, benzyl acetate, methyl glycol acetate, ethyl glycol acetate, butyl

glycol acetate, ethyl diglycol acetate, butyl diglycol acetate, 1-methoxypropyl acetate, ethoxypropyl acetate, 3-methoxybutyl acetate, ethyl 3-ethoxypropionate, isobutyl isobutyrate, ethyl lactate, butyl lactate, butyl glycolate, dimethyl adipate, glutarate, succinate, ethylene carbonate, propylene carbonate, butyrolactone, or a combination thereof.

201. (Withdrawn) The paint of claim 195, wherein the oxygenated compound comprises a glycol ether.

202. (Withdrawn) The paint of claim 201, wherein the glycol ether comprises methyl glycol, ethyl glycol, propyl glycol, isopropyl glycol, butyl glycol, methyl diglycol, ethyl diglycol, butyl diglycol, ethyl triglycol, butyl triglycol, diethylene glycol dimethyl ether, methoxypropanol, isobutoxypropanol, isobutyl glycol, propylene glycol monoethyl ether, 1-isopropoxy-2-propanol, propylene glycol mono-n-propyl ether, propylene glycol n-butyl ether, methyl dipropylene glycol, methoxybutanol, or a combination thereof.

203. (Withdrawn) The paint of claim 195, wherein the oxygenated compound comprises a ketone.

204. (Withdrawn) The paint of claim 203, wherein the ketone comprises acetone, methyl ethyl ketone, methyl propyl ketone, methyl isopropyl ketone, methyl butyl ketone, methyl isobutyl ketone, methyl amyl ketone, methyl isoamyl ketone, diethyl ketone, ethyl amyl ketone, dipropyl ketone, diisopropyl ketone, cyclohexanone, methylcyclohexanone, trimethylcyclohexanone, mesityl oxide, diisobutyl ketone, isophorone, or a combination thereof.

205. (Withdrawn) The paint of claim 195, wherein the oxygenated compound comprises an ether.

206. (Withdrawn) The paint of claim 205, wherein the ether comprises diethyl ether, diisopropyl ether, dibutyl ether, di-sec-butyl ether, methyl tert-butyl ether, tetrahydrofuran, 1,4-dioxane, metadioxane, or a combination thereof.

207. (Withdrawn) The paint of claim 183, wherein the liquid organic compound comprises a chlorinated hydrocarbon.

208. (Withdrawn) The paint of claim 207, wherein the chlorinated hydrocarbon comprises methylene chloride, trichloromethane, tetrachloromethane, ethyl chloride, isopropyl chloride, 1,2-dichloroethane, 1,1,1-trichloroethane, trichloroethylene, 1,1,2,2-tetrachloroethane, 1,2-dichloroethylene, perchloroethylene, 1,2-dichloropropane, chlorobenzene, or a combination thereof.

209. (Withdrawn) The paint of claim 183, wherein the liquid organic compound comprises a nitrated hydrocarbon.

210. (Withdrawn) The paint of claim 209, wherein the nitrated hydrocarbon comprises a nitroparaffin, N-methyl-2-pyrrolidone, or a combination thereof.

211. (Withdrawn) The paint of claim 183, wherein the liquid organic compound comprises a miscellaneous organic liquid.

212. (Withdrawn) The paint of claim 209, wherein the miscellaneous organic liquid comprises carbon dioxide; acetic acid, methylal, dimethylacetal, *N,N*-dimethylformamide, *N,N*-dimethylacetamide, dimethylsulfoxide, tetramethylene suflone, carbon disulfide, 2-nitropropane, N-methylpyrrolidone, hexamethylphosphoric triamide, 1,3-dimethyl-2-imidazolidinone, or a combination thereof.

213. (Withdrawn) The paint of claim 183, wherein the liquid organic compound comprises a plasticizer.

214. (Withdrawn) The paint of claim 213, wherein the plasticizer comprises an adipate, an azelate, a citrate, a chlorinated plasticizer, an epoxide, a phosphate, a sebacate, a phthalate, a polyester, a trimellitate, or a combination thereof.

215. (Withdrawn) The paint of claim 180, wherein the liquid component comprises an inorganic compound.

216. (Withdrawn) The paint of claim 215, wherein the inorganic compound comprises ammonia, hydrogen cyanide, hydrogen fluoride, hydrogen cyanide, sulfur dioxide, or a combination thereof.

217. (Previously Presented) The paint of claim 180, wherein the liquid component comprises water.

218. (Withdrawn) The paint of claim 217, wherein the liquid component further comprises methanol, ethanol, propanol, isopropyl alcohol, tert-butanol, ethylene glycol, methyl glycol, ethyl glycol, propyl glycol, butyl glycol, ethyl diglycol, methoxypropanol, methyldipropylene glycol, dioxane, tetrahydrofuran, acetone, diacetone alcohol, dimethylformamide, dimethyl sulfoxide, ethylbenzene, tetrachloroethylene, *p*-xylene, toluene, diisobutyl ketone, trichloroethylene, trimethylcyclohexanol, cyclohexyl acetate, dibutyl ether, trimethylcyclohexanone, 1,1,1-trichloroethane, hexane, hexanol, isobutyl acetate, butyl acetate, isophorone, nitropropane, butyl glycol acetate, 2-nitropropane, methylene chloride, methyl isobutyl ketone, cyclohexanone, isopropyl acetate, methylbenzyl alcohol, cyclohexanol, nitroethane, methyl tert-butyl ether, ethyl acetate, diethyl ether, butanol, butyl glycolate, isobutanol, 2-butanol, propylene carbonate, ethyl glycol acetate, methyl acetate, methyl ethyl ketone, or a combination thereof.

219. (Previously Presented) The paint of claim 87, wherein the paint further comprises a colorant.

220. (Previously Presented) The paint of claim 219, wherein the colorant comprises a pigment, a dye, or a combination thereof.

221. (Previously Presented) The paint of claim 219, wherein the colorant comprises a pigment.

222. (Previously Presented) The paint of claim 221, wherein the enzymatically active esterase comprises 0.001% to 100% of the pigment.

223. (Previously Presented) The paint of claim 221, wherein the pigment volume concentration of the paint is 20% to 60%.

224. (Previously Presented) The paint of claim 221, wherein the pigment comprises a corrosion resistance pigment, a camouflage pigment, a color property pigment, an extender pigment, or a combination thereof.

225. (Previously Presented) The paint of claim 221 wherein the pigment comprises a corrosion resistance pigment.

226. (Previously Presented) The paint of claim 225, wherein the corrosion resistance pigment comprises aluminum flake, aluminum triphosphate, aluminum zinc phosphate, ammonium chromate, barium borosilicate, barium chromate, barium metaborate, basic calcium zinc molybdate, basic carbonate white lead, basic lead silicate, basic lead silicochromate, basic lead silicosulfate, basic zinc molybdate, basic zinc molybdatephosphate, basic zinc molybdenum phosphate, basic zinc phosphate hydrate, bronze flake, calcium barium phosphosilicate, calcium borosilicate, calcium chromate, calcium plumbate, calcium strontium phosphosilicate, calcium strontium zinc phosphosilicate, dibasic lead phosphite, lead chromosilicate, lead cyanamide, lead suboxide, lead sulfate, mica, micaceous iron oxide, red lead, steel flake, strontium borosilicate, strontium chromate, tribasic lead phosphosilicate, zinc borate, zinc borosilicate, zinc chromate, zinc dust, zinc hydroxy phosphite, zinc molybdate, zinc oxide, zinc phosphate, zinc potassium chromate, zinc silicophosphate hydrate, zinc tetraoxylchromate, or a combination thereof.

227. (Previously Presented) The paint of claim 225, wherein the paint is a metal surface paint.

228. (Previously Presented) The paint of claim 225, wherein the paint is a primer.

229. (Previously Presented) The paint of claim 221, wherein the pigment comprises a camouflage pigment.

230. (Previously Presented) The paint of claim 229, wherein the camouflage pigment comprises an anthraquinone black, a chromium oxide green, or a combination thereof.

231. (Previously Presented) The paint of claim 221, wherein the pigment comprises a color property pigment.

232. (Previously Presented) The paint of claim 231, wherein the color property pigment comprises a black pigment, a brown pigment, a white pigment, a pearlescent pigment, a violet pigment, a blue pigment, a green pigment, a yellow pigment, an orange pigment, a red pigment, a metallic pigment, or a combination thereof.

233. (Previously Presented) The paint of claim 232, wherein the color property pigment comprises aniline black; anthraquinone black; carbon black; copper carbonate; graphite; iron oxide; micaceous iron oxide; manganese dioxide; azo condensation; benzimidazolone; iron oxide; metal complex brown; antimony oxide; basic lead carbonate; lithopone; titanium dioxide; white lead; zinc oxide; zinc sulphide; titanium dioxide and ferric oxide covered mica; bismuth oxychloride crystal; dioxanine violet; carbazol Blue; carbazole Blue; cobalt blue; copper phthalocyanine; dioxanine Blue; indanthrone; phthalocyanin blue; Prussian blue; ultramarine; chrome green; chromium oxide green; halogenated copper phthalocyanine; hydrated chromium oxide; phthalocyanine green; anthrapyrimidine; arylamide yellow; barium chromate; benzimidazolone yellow; bismuth vanadate; cadmium sulfide yellow; complex inorganic color pigment; diarylide yellow; disazo condensation; flavanthrone; isoindoline; isoindolinone; lead chromate; nickel azo yellow; organic metal complex; quinophthalone; yellow iron oxide; yellow oxide; zinc chromate; perinone orange; pyrazolone orange; anthraquinone; benzimidazolone; RON arylamide; cadmium red; cadmium selenide; chrome red; dibromanthrone; diketopyrrolo-pyrrole pigment; disazo condensation pigment; lead molybdate; perylene; pyranthrone; quinacridone; quinophthalone; red iron oxide; red lead; toluidine red; tonor pigment; β -naphthol

red; aluminum flake; aluminum non-leafing, gold bronze flake, zinc dust, stainless steel flake, nickel flake, nickel powder, or a combination thereof.

234. (Previously Presented) The paint of claim 221, wherein the pigment comprises an extender pigment.

235. (Previously Presented) The paint of claim 234, wherein the extender pigment comprises a barium sulphate, a calcium carbonate, a kaolin, a calcium sulphate, a silicate, a silica, an alumina trihydrate; or a combination thereof.

236. (Previously Presented) The paint of claim 1, wherein the paint further comprises an additive.

237. (Previously Presented) The paint of claim 236, wherein the additive comprises 0.001% to 20.0% by weight of the paint.

238. (Previously Presented) The paint of claim 236, wherein said additive comprises an accelerator, an adhesion promoter, an antifoamer, anti-insect additive, an antioxidant, an antiskinning agent, a buffer, a catalyst, a coalescing agent, a corrosion inhibitor, a defoamer, a dehydrator, a dispersant, a drier, electrical additive, an emulsifier, a filler, a flame/fire retardant, a flatting agent, a flow control agent, a gloss aid, a leveling agent, a marproofing agent, a preservative, a silicone additive, a slip agent, a surfactant, a light stabilizer, a rheological control agent, a wetting additive, or a combination thereof.

239. (Previously Presented) The paint of claim 236, wherein the additive comprises a preservative.

240. (Previously Presented) The paint of claim 239, wherein the preservative comprises an in-can preservative, an in-film preservative, or a combination thereof.

241. (Previously Presented) The paint of claim 239, wherein the preservative comprises a biocide.
242. (Previously Presented) The paint of claim 241, wherein the biocide comprises a bactericide, a fungicide, an algicide, or a combination thereof.
243. (Withdrawn) The paint of claim 236, wherein the additive comprises a wetting additive, a dispersant, or a combination thereof.
244. (Withdrawn) The paint of claim 236, wherein the additive comprises an anti-foamer, a defoamer, or a combination thereof.
245. (Withdrawn) The paint of claim 236, wherein the additive comprises a rheological control agent.
246. (Withdrawn) The paint of claim 245, wherein the rheological control agent comprises a thickener, a viscosifier, or a combination thereof.
247. (Withdrawn) The paint of claim 236, wherein the additive comprises a corrosion inhibitor.
248. (Withdrawn) The paint of claim 247, wherein said corrosion inhibitor comprises an in-can corrosion inhibitor, a flash corrosion inhibitor, or a combination thereof.
249. (Withdrawn) The paint of claim 236, wherein the additive comprises a light stabilizer.
250. (Withdrawn) The paint of claim 249, wherein the light stabilizer comprises a UV absorber, a radical scavenger, or a combination thereof.
251. (Previously Presented) The paint of claim 1, wherein the paint is a multi-pack paint.

252. (Previously Presented) The paint of claim 251, wherein the paint is stored in two to five containers prior to application to a surface.

253. (Previously Presented) The paint of claim 251, wherein 0.001% to 100% of the enzymatically active esterase is stored in a container of the multi-pack paint, and at least one additional paint component is stored in another container of the multi-pack paint.

254. (Previously Presented) The paint of claim 253, wherein the container comprising the enzymatically active esterase further comprises an additional paint component.

255. (Previously Presented) The paint of claim 254, wherein the additional paint component comprises a preservative, a wetting agent, a dispersing agent, a buffer, a liquid component, a rheological modifier, or a combination thereof.

256. (Withdrawn) The paint of claim 254, wherein the additional paint component comprises glycerol.

257. - 271. (Canceled)

272. (Currently Amended) A coating comprising a biomolecule composition, wherein the biomolecule composition comprises a phosphoric triester hydrolase, wherein the coating comprises an architectural coating, an automotive coating, a can coating, a sealant coating, a chemical agent resistant coating, a camouflage coating, a traffic marker coating, an aircraft coating, a nuclear power plant coating, or a combination thereof.

273. – 308. (Canceled)

309. (Currently Amended) A multi-pack paint, wherein one container comprises 100 parts by volume paint, wherein the paint comprises an architectural paint, an automotive paint, a can paint, a sealant paint, a chemical agent resistant paint, a camouflage paint, a traffic marker paint, an aircraft paint, a nuclear power plant paint, or a combination thereof. wherein a second

container comprises three parts by volume of a biomolecular composition comprising a whole cell particulate material, wherein the whole cell particulate material comprises an organophosphorus hydrolase, and wherein each part of the biomolecular composition comprises 1 mg of whole cell particulate material and 50% glycerol.

310. - 318. (Canceled)

319. (Currently Amended) A surface treatment comprising an enzymatically active esterase classified in an enzyme subclass designated by Enzyme Commission number EC 3.1.8 which is capable of exhibiting catalyzing activity in the surface treatment at one or more instances after the surface treatment has been formed with the enzymatically active esterase for greater than 1 week, wherein the surface treatment comprises an architectural surface treatment, an automotive surface treatment, a can surface treatment, a sealant surface treatment, a chemical agent resistant surface treatment, a camouflage surface treatment, a traffic marker surface treatment, an aircraft surface treatment, a nuclear power plant surface treatment, or a combination thereof.

320. (Currently Amended) The surface treatment of claim 319, wherein the surface treatment is a paint, wherein the paint comprises an architectural paint, an automotive paint, a can paint, a sealant paint, a chemical agent resistant paint, a camouflage paint, a traffic marker paint, an aircraft paint, a nuclear power plant paint, or a combination thereof, a non-film forming coating, an elastomer, an adhesive, a sealant, a material applied to a textile, or a wax.

321. (Previously Presented) The surface treatment of claim 320, wherein the surface treatment comprises a pH indicator.

322. (Withdrawn) The paint of claim 45, wherein the organophosphorus acid anhydrolase comprises an *Acinetobacter calcoaceticus* ATCC 19606 OPAA, an *Aeromonas hydrophila* ATCC 7966 OPAA, an *Aeromonas proteolytica* OPAA, an *Arm. A* isolate 1 OPAA, an *Arm. A* isolate 2 OPAA, a *Bacillus subtilis* (fr. Zuberer) OPAA, a *Bacillus subtilis* OPAA, a ATCC 18685 OPAA, a *Bacillus subtilis* BRB41 OPAA, a *Bacillus subtilis* Q OPAA, a *Bacillus thuringensis* (fr. Zuberer) OPAA, a *Burkholderia cepacia* LB400 OPAA, a *Burkholderia*

cepacia T OPAA, a *Citrobacter diversus* OPAA, a *Citrobacter freundii* ATCC 8090 OPAA, an *Edwardsiella tarda* ATCC 15947 OPAA, an *Enterobacter aerogenes* ATCC 13048 OPAA, an *Enterobacter cloacae* 96-3 OPAA, an *Enterobacter liquefaciens* 363 OPAA, an *Enterobacter liquefaciens* 670 OPAA, an *Erwinia carotovora* EC189-67 OPAA, an *Erwinia herbicola* OPAA, an *Erwinia herbicola* (agglomerans) OPAA, an *Escherichia coli* E63 OPAA, a *Hafnia alvei* ATCC 13337 OPAA, a *Klebsiella pneumoniae* ATCC 13883 OPAA, a *Lactobacillus casei* 686 OPAA, a *Lactococcus lactis* subsp. *lactis* pIL253 OPAA, a *Proteus morganii* OPAA, a *Proteus vulgaris* ATCC 13315 OPAA, a *Pseudomonas aeruginosa* ATCC 10145 OPAA, a *Pseudomonas aeruginosa* ATCC 27853 OPAA, a *Pseudomonas fluorescens* OPAA, a *Pseudomonas putida* ATCC 18633 OPAA a *Pseudomonas putida* PpY101 OPAA, a *Pseudomonas* sp. P OPAA, a *Salmonella typhimurium* ATCC 14028 OPAA, a *Serratia marcescens* ATCC 8100 OPAA, a *Serratia marcescens* HY OPAA, a *Serratia marcescens* Nima OPAA, a *Shigella flexneri* ATCC 12022 OPAA, a *Shigella sonnei* ATCC 25931 OPAA, a *Staphylococcus aureus* ATCC 25923 OPAA, a *Staphylococcus* sp. S OPAA, a *Streptococcus faecalis* ATCC 19433 OPAA, a *Vibrio parahaemolyticus* TAMU 109 OPAA, a *Yersinia enterocolitica* ATCC 9610 OPAA, a *Yersinia enterocolitica* TAMU 84 OPAA, a *Yersinia frederiksenii* TAMU 91 OPAA, a *Yersinia intermedia* ATCC 29909 OPAA, a *Yersinia intermedii* TAMU 86 OPAA, a *Yersinia kristensenia* ATCC 33640 OPAA, a *Yersinia kristensenia* TAMU 95 OPAA, a *Yersinia* sp. ATCC 29912 OPAA, a *Vibrio proteolyticus* ATCC 15338 OPAA, a *Thermus* sp. ATCC 31674 OPAA, a *Streptomyces cinnamomensis* subsp. *Proteolyticus* ATCC 19893 OPAA, a *Deinococcus proteolyticus* ATCC 35074 OPAA, a *Clostridium proteolyticum* ATCC 49002 OPAA, an *Aeromonas jandaei* ATCC 49568 OPAA, an *Aeromonas veronii* biogroup *sobria* ATCC 9071 OPAA, a *Pseudoalteromonas haloplanktis* ATCC 23821 OPAA, a *Xanthomonas campestris* ATCC 33913 OPAA, a *Pseudoalteromonas espejiana* ATCC 27025 OPAA, a *Shewanella putrefaciens* ATCC 8071 OPAA, a *Stenotrophomonas maltophilus* ATCC 13637 OPAA, an *Ochrobactrum anthropi* ATCC 19286 OPAA, a *Desulfovibrio vulgaris* OPAA, or a combination thereof.

323. (Previously Presented) The paint of claim 73, wherein the biocarbonate comprises an ammonium bicarbonate.

324. (Previously Presented) The paint of claim 72, wherein the buffer comprises a monobasic phosphate buffer, a dibasic phosphate buffer, Trizma base, a 5 zwitterionic buffer, triethanolamine, or a combination thereof.

325. (Withdrawn) The paint of claim 213, wherein the plasticizer comprises di(2-ethylhexyl) azelate; di(butyl) sebacate; di(2-ethylhexyl) phthalate; di(isononyl) phthalate; dibutyl phthalate; butyl benzyl phthalate; di(isooctyl) phthalate; di(idodecyl) phthalate; tris(2-ethylhexyl) trimellitate; tris(isononyl) trimellitate; di(2-ethylhexyl) adipate; di(isononyl) adipate; acetyl tri-n-butyl citrate; an epoxy modified soybean oil; 2-ethylhexyl epoxytallate; isodecyl diphenyl phosphate; tricresyl phosphate; isodecyl diphenyl phosphate; tri-2-ethylhexyl phosphate; an adipic acid polyester; an azelaic acid polyester; or a bisphenoxyethylformal.

326. (Previously Presented) The paint of claim 221, wherein the pigment comprises barium ferrite; borosilicate; burnt sienna; burnt umber; calcium ferrite; cerium; chrome orange; chrome yellow; chromium phosphate; cobalt-containing iron oxide; fast chrome green; gold bronze powder; luminescent; magnetic; molybdate orange; molybdate red; oxazine; oxysulfide; polycyclic; raw sienna; surface modified pigment; thiazine; thioindigo; transparent cobalt blue; transparent cobalt green; transparent iron blue; transparent zinc oxide; triarylcarbonium; zinc cyanamide; or zinc ferrite.

327. (Previously Presented) The paint of claim 229, wherein the camouflage pigment reduces the ability of the coating to be detected by a device that measures infrared radiation.

328. (Withdrawn) The paint of claim 239, wherein the preservative comprises 1-(3-chloroallyl)-3,5,7-triaza-1-azoniaadamantane chloride; 1,2-benzisothiazoline-3-one; 1,2-dibromo-2,4-dicyanobutane; 1,3-bis(hydroxymethyl)-5,5-dimethylhydantoin; 1-methyl-3,5,7-triaza-1-azoniaadamantane chloride; 2-(4-thiazolyl)benzimidazole; 2-(hydroxymethyl)-amino-2-methyl-1-propanol; 2(hydroxymethyl)-aminoethanol; 2,2-dibromo-3-nitrilopropionamide; 2,4,5,6-tetrachloro-isophthalonitrile; 2-mercaptobenzo-thiazole; 2-methyl-4-isothiazolin-3-one; 2-n-octyl-4-isothiazoline-3-one; 3-iodo-2-propynyl N-butyl carbamate; 4,4-dimethyloxazolidine; 5-chloro-2-methyl-4-isothiazolin-3-one; 5-hydroxy-methyl-1-aza-3,7-dioxabicyclo (3.3.0.)

octane; 6-acetoxy-2,4-dimethyl-1,3-dioxane; 7-ethyl bicyclooxazolidine; a combination of 2-(thiocyanomethyl-thio)benzothiozole and methylene bis(thiocyanate); a combination of 4-(2-nitrobutyl)-morpholine and 4,4'-(2-ethylnitrotrimethylene) dimorpholine; a combination of 4,4-dimethyl-oxazolidine and 3,4,4-trimethyloxazolidine; a combination of 5-chloro-2-methyl-4-isothiazolin-3-one and 2-methyl-4-isothiazolin-3-one; a combination of chlorothalonil and 3-iodo-2-propynyl N-butyl carbamate; a combination of chlorothalonil and a triazine compound; a combination of tributyltin benzoate and alkylamine hydrochlorides; a combination of zinc dimethyldithiocarbamate and zinc 2-mercaptobenzothiazole; a copper soap; a metal soap, a mercury soap; a mixture of bicyclic oxazolidines; a tin soap; an alkylamine hydrochloride; an amine reaction product; barium metaborate; butyl parahydroxybenzoate; copper(II) 8-quinolinolate; diiodomethyl-p-tolysulfone; ethyl parahydroxybenzoate; glutaraldehyde; hexahydro-1,3,5-triethyl-s-triazine; hydroxymethyl-5,5-dimethylhydantoin; methyl parahydroxybenzoate; N-(trichloromethylthio) phthalimide; N-cyclopropyl-N-(1-dimethylethyl)-6-(methylthio)-1,3,5-triazine-2,4-diamine; N-trichloromethyl-thio-4-cyclohexene-1,2-dicarboximide; p-chloro-m-cresol; phenylmercuric acetate; potassium dimethyldithiocarbamate; potassium N-hydroxy-methyl-N-methyl-dithiocarbamate; propyl parahydroxybenzoate; sodium 2-pyridinethiol-1-oxide; tetra-hydro-3,5-di-methyl-2H-1,3,5-thiadiazine-2-thione; tributyltin benzoate; tributyltin oxide; tributyltin salicylate; zinc 2-pyridinethiol-N-oxide; zinc oxide; or a zinc soap.

329. (Withdrawn) The paint of claim 236, wherein the additive comprises a combination of an unsaturated polyamine amide salt and a lower molecular weight acid; a polycarboxylic acid polymer alkylolammonium salt; a combination of a long chain polyamine amide salt and a polar acidic ester; a hydroxyfunctional carboxylic acid ester; or a non-ionic wetting agent.

330. (Withdrawn) The paint of claim 236, wherein the additive comprises a wetting additive.

331. (Withdrawn) The paint of claim 330, wherein the wetting additive comprises an ethylene oxide molecule comprising a hydrophobic moiety; a surfactant; pine oil; a metal soap; calcium octoate; zinc octoate; aluminum stearate; zinc stearate; bis(2-ethylhexyl)sulfosuccinate;

(octylphenoxy)polyethoxyethanol octylphenyl-polyethylene glycol; nonyl phenoxy poly (ethylene oxy) ethanol; or ethylene glycol octyl phenyl ether.

332. (Withdrawn) The paint of claim 236, wherein the additive comprises a dispersant.

333. (Withdrawn) The paint of claim 332, wherein the dispersant comprises tetra-potassium pyrophosphate, a phosphate ester surfactant, a particulate material, a calcium carbonate coated with fatty acid, a modified montmorillonite clay, or a caster wax.

334. (Withdrawn) The paint of claim 236, wherein the additive comprises an oil; a mineral oil; a silicon oil; a fatty acid ester; dibutyl phosphate; a metallic soap; a siloxane; a wax; an alcohol comprising six to ten carbons; or a pine oil.

335. (Withdrawn) The paint of claim 244, wherein the paint further comprises an emulsifier, a hydrophobic silica, or a combination thereof.

336. (Withdrawn) The paint of claim 245, wherein the rheological control agent comprises a silicate, a montmorillonite silicate, aluminum silicate, a bentonite, magnesium silicate, a cellulose ether, a hydrogenated oil, a polyacrylate, a polyvinylpyrrolidone, a urethane, a methyl cellulose, a hydroxyethyl cellulose, hydrogenated castor oil, a hydrophobically modified ethylene oxide urethane, a titanium chelate, or a zirconium chelate.

337. (Withdrawn) The paint of claim 247, wherein the corrosion inhibitor comprises a chromate, a phosphate, a molybdate, a wollastonite, a calcium ion-exchanged silica gel, a zinc compound, a borosilicate, a phosphosilicate, a hydrotalcite, or a combination thereof.

338. (Withdrawn) The paint of claim 248, wherein the corrosion inhibitor comprises sodium nitrate, sodium benzoate, ammonium benzoate, or 2-amino-2-methyl-propan-1-ol.

339. (Withdrawn) The paint of claim 249, wherein the light stabilizer comprises a UV absorber.

340. (Withdrawn) The paint of claim 339, wherein the UV absorber comprises a hydroxybenzophenone, a hydroxyphenylbenzotriazole, a hydroxyphenyl-S-triazine, an oxalic anilide, yellow iron oxide, or a combination thereof.

341. (Withdrawn) The paint of claim 249, wherein the light stabilizer comprises a radical scavenger.

342. (Withdrawn) The paint of claim 341, wherein the radical scavenger comprises a sterically hindered amine; bis(1,2,2,6,6,-pentamethyl-4-piperidiny) ester, or bis(2,2,6,6-tetramethyl-1-isooctyloxy-4-piperidiny) ester.

343. (Previously Presented) The paint of claim 1, wherein the paint is capable of being applied to a surface by a spray applicator.

344. (Previously Presented) The paint of claim 1, wherein the enzymatically active esterase is microencapsulated.

345. (Previously Presented) The paint of claim 1, wherein the paint comprises a pH indicator.

346. (Previously Presented) The paint of claim 345, wherein the pH indicator is a colorimetric indicator.

347. (Previously Presented) The paint of claim 346, wherein the colorimetric indicator comprises Alizarin, Alizarin S, Brilliant Yellow, Lacmoid, Neutral Red, Rosolic Red, or a combination thereof.

348. (Previously Presented) The paint of claim 345, wherein the pH indicator is a fluorimetric indicator.

349. (Previously Presented) The paint of claim 348, wherein the fluorimetric indicator comprises SNARF-1, BCECF, HPTS, Fluorescein, or a combination thereof.

350. (Previously Presented) The paint of claim 345, wherein the pH indicator is a pH indicator that undergoes a color or fluorescence change between pH 8 to pH 9.

351. (Previously Presented) The paint of claim 1, wherein the enzymatically active esterase is capable of exhibiting catalytic activity at one or more instances during a period of greater than 1 week after the paint has been formed with the enzymatically active esterase.

352. (Previously Presented) The paint of claim 351, wherein the enzymatically active esterase is capable of exhibiting catalytic activity at one or more instances after the paint has been formed with the enzymatically active esterase for greater than 1 month.

353. (Previously Presented) The paint of claim 352, wherein the enzymatically active esterase is capable of exhibiting catalytic activity at one or more instances after the paint has been formed with the enzymatically active esterase for greater than 1 year.

354. (Previously Presented) The paint of claim 1, wherein the paint is an opaque coating.

355. (Previously Presented) The paint of claim 1, where the enzymatically active esterase is capable of catalyzing the hydrolysis of a chemical warfare agent.

356. (Previously Presented) The paint of claim 1, wherein the enzymatically active esterase is capable of catalyzing the hydrolysis of a pesticide.

357. (Withdrawn) The paint of claim 104, wherein the non-film formation binder lacks sufficient size to undergo film formation.

358. (Withdrawn) The paint of claim 357, wherein the non-film formation binder comprises a molecular weight between 1 kilodalton and 29 kilodaltons.

359. (Withdrawn) The paint of claim 104, wherein the non-film formation binder lacks sufficient crosslinking moiety to undergo film formation.

360. (Previously Presented) The surface treatment of claim 319, wherein the enzymatically active esterase is capable of catalyzing the hydrolysis of multiple organophosphorus compounds.

361. (Previously Presented) The surface treatment of claim 360, wherein the multiple organophosphorus compounds comprise one or more chemical warfare agents.

362. (Previously Presented) The surface treatment of claim 360, wherein the multiple organophosphorus compounds comprise one or more pesticides.

363. - 364. (Canceled)

365. (Previously Presented) The surface treatment of claim 319, wherein the surface treatment is an opaque coating.

366. (Previously Presented) The surface treatment of claim 319, wherein the surface treatment is a clear coating.

367. (Previously Presented) The surface treatment of claim 319, where the surface treatment is selected from a group consisting of a water-based coating, a solvent-based coating, an oil-based coating, and a latex-based coating.

368. (Currently Amended) A coating comprising an enzymatically active esterase classified in an enzyme subclass designated by Enzyme Commission number EC 3.1.8 which is capable of exhibiting catalyzing activity in the coating at one or more instances after the coating has been formed with the enzymatically active esterase for greater than 1 week, wherein the coating comprises an architectural coating, an automotive coating, a can coating, a sealant coating, a chemical agent resistant coating, a camouflage coating, a traffic marker coating, an aircraft coating, a nuclear power plant coating, or a combination thereof.

369. (Previously Presented) The coating of claim 368, wherein the enzymatically active esterase is capable of exhibiting said catalyzing activity in the coating at one or more instances after the coating has been formed with the enzymatically active esterase for greater than 1 month.

370. (Previously Presented) The coating of claim 368, wherein the enzymatically active esterase is capable of exhibiting said catalyzing activity in the coating at one or more instances after the coating has been formed with the enzymatically active esterase for greater than 1 year.

371. (Previously Presented) The coating of claim 368, wherein the enzymatically active esterase is capable of catalyzing the hydrolysis of multiple organophosphorus compounds.

372. (Previously Presented) The coating of claim 371, wherein the multiple organophosphorus compounds comprise one or more chemical warfare agents.

373. (Previously Presented) The coating of claim 371, wherein the multiple organophosphorus compounds comprise one or more pesticides.

374. – 375. (Canceled)

376. (Previously Presented) The coating of claim 368, wherein the coating is an opaque coating.

377. (Previously Presented) The coating of claim 368, wherein the coating is a clear coating.

378. (Previously Presented) The coating of claim 368, wherein the coating is selected from a group consisting of a paint, an elastomer, a filler, an adhesive, a sealant, a material applied to a textile, and a wax.

379. (Previously Presented) The coating of claim 368, where the coating is selected from a group consisting of a water-based coating, a solvent-based coating, an oil-based coating, and a latex-based coating.
380. (Previously Presented) The coating of claim 368, wherein the coating is a liquid capable of forming a solid film.
381. (Previously Presented) The coating of claim 368, wherein the coating is a solid film.
382. (Previously Presented) The coating of claim 381, wherein the coating comprises a thickness between 5 μm to 1500 μm .
383. (Previously Presented) The coating of claim 381, wherein the coating is a temporary film on a surface for a time period between 1 second and 6 months.
384. (Previously Presented) The coating of claim 383, wherein the temporary film is susceptible to wear by exposure to water, exposure to weathering conditions, or a combination thereof.
385. (Previously Presented) The coating of claim 383, wherein the temporary film is susceptible to wear by a scrubbing action, exposure to a solvent, or a combination thereof.
386. (Withdrawn) The coating of claim 368, wherein the coating comprises a non-film forming binder which lacks sufficient size to undergo film formation.
387. (Withdrawn) The coating of claim 386, wherein the non-film forming binder comprises a molecular weight between 1 kilodaltons and 29 kilodaltons.
388. (Withdrawn) The coating of claim 368, wherein the coating comprises a non-film forming binder which lacks sufficient cross-linking moiety to undergo film formation.

389. (Previously Presented) The coating of claim 368, wherein the coating is a self-cleaning film.

390. (Previously Presented) The coating of claim 368, wherein the coating further comprises one or more additional materials selected from a group consisting of a filler, a liquid component, a colorant, a plasticizer, a catalyst, and a buffer.

391. (Previously Presented) The coating of claim 368, wherein the coating comprises a plurality of sublayers, and wherein at least one of the sublayers comprises the enzymatically active esterase.

392. (Previously Presented) The coating of claim 368, wherein the coating is applied to one or more architectural surfaces, one or more industrial surfaces, one or more specification surfaces, or a combination thereof.

393. (New) A paint comprising, an enzymatically active organophosphorus hydrolase, a polyvinyl acetate binder, a filler comprising an extender pigment, and a biocide preservative, wherein the paint comprises an architectural paint, an automotive paint, a can paint, a sealant paint, a chemical agent resistant paint, a camouflage paint, a traffic marker paint, an aircraft paint, a nuclear power plant paint, or a combination thereof.

394. (New) A paint comprising, an enzymatically active organophosphorus hydrolase, a latex binder, a filler comprising an extender pigment, and a biocide preservative, wherein the paint comprises an architectural paint, an automotive paint, a can paint, a sealant paint, a chemical agent resistant paint, a camouflage paint, a traffic marker paint, an aircraft paint, a nuclear power plant paint, or a combination thereof.